Design Decisions - Final

Microcontroller

- ESP32 S3 - A cheap yet powerful microcontroller that will be able to handle the job of powering the motor. It is lightweight too which makes it great for a project heavily based on weight.

Motor

- DYS SunFun 2306 - 1750KV Motor - Bigger than the POC propeller. Speeds up slower but can carry more weight and handle more current. Makes up to 1k grams of thrust which is overkill for the project. The propeller being used is still 5 inches in diameter.

Motor Driver

- V-Good RC 32-Bit 30A 2-4S Brushless ESC - Works with the battery and the motor. The amount of max current is more than enough for the motor. Comes with SBEC but just needs the PWM and Ground pins to connect the ESP32 to the ESC.

Distance Sensor

- Adafruit VL53L0X - uses a laser to measure the distance. Has a range of up to 2 meters which is enough for this prototype. Just make sure the spot that the distance sensor uses to measure the distance is white for better reflectability.

Battery

- Lumenier 550mAh 4s 80c Lipo Battery - Has the required voltage for the motor and motor driver to run: both need 4s. The amount of current it can discharge is enough to cover the electronics.

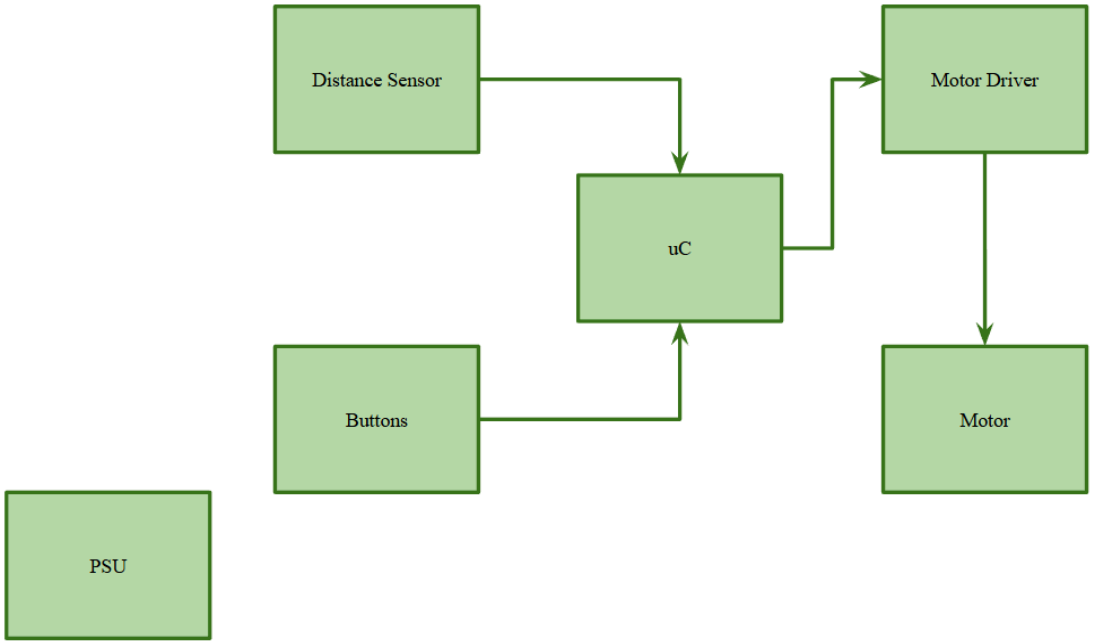
Button (Switch)

- Button - used to turn the drone on/off. Could also look into adding more functions in the future. It’s easy to use and easy to implement to the hardware and software. Very lightweight.

Arduino IDE (Software)

- Used the Arduino IDE since it's simple to use and is compatible with the ESP32.

Current Block Diagram:



Current Bill of Materials:

Item	Link to Market Place	Status
Microcontroller	ESP32 S3	Bought
Motor	SunFun	Bought
ESC	V-Good RC 32-Bit 30A 2-4S Brushless ESC	Bought
Distance	Adafruit VL53L0X Time of Flight Distance Sensor	Bought
PSU	Lumenier 550mAh 4s 80c Lipo Battery (XT-30)	Bought
Charger	Gens Ace iMars Mini G-Tech 60W 2-4S 5A	Bought
Propeller	Gemfan Hurricane	Bought
Button	N/A	Bought